Telecommunications Services Inventory of Rural Alaska

Final Database and Report

Prepared for:
The Denali Commission

McDowell
G R O U P

December 2000

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Juneau • Anchorage

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Introduction

The Telecommunications Inventory of Rural Alaska is a comprehensive snapshot in time of the services available in 263 communities in Alaska. It provides a basis from which to chart Alaska's telecommunications landscape in the year 2000. That landscape is rapidly changing in rural as well as urban settings, as remote consumers demand more technology to bring them closer to the rest of the world.

Recognizing that telecommunications access is a critical component to rural economic development, education and health care, the Denali Commission, in cooperation with the State of Alaska, has sought as complete an inventory of rural telecommunications services as possible.

The database is a picture of the technology in place across the state. It presents the current providers, availability and price of the following telecommunications services:

- Local telephone, including number of access lines and customers
- Long distance, including number of subscribers and trunks
- Pay telephone
- Emergency telephone services, specifically Basic 911 and Enhanced 911
- Cellular telephone
- Cable television
- Internet access, including schools served by particular companies
- Teleconferencing services, including State of Alaska Legislative Information Offices
- Other voice and data services, as identified through the survey process
- Broadcast radio
- Broadcast television
- Direct broadcast satellite
- Fiber optic cable routes

Telecommunications services are ever-changing. The database captures current information, but company mergers, sales, changing technologies, the high cost of providing service, and company secrecy mean that some data inevitably go out of date very quickly. This is especially apparent in Internet services, probably the most fluid of all the new media. Some telecommunications providers are not represented here: Either they chose not to participate in the survey, or they were not identified as providing a service to rural Alaska.

Readers are advised that prices for unregulated services, including Internet, cellular telephone and cable television, change continually. We requested standard rate information, however, telecommunications companies repackage and re-price their consumer services often to stay competitive. While database users can compare prices in rural Alaska with Alaska's largest cities and cities outside the state, those prices reflect only one moment in time. Much of the value of this unprecedented inventory is as a historical benchmark to assist in understanding future trends in the industry. The Denali Commission can update the Telecommunications Services Inventory of Rural Alaska as Alaska's telecommunications landscape changes.

Methodology

The McDowell Group research team requested information from all regulated and non-regulated telecommunications companies that could be identified as providing a service to rural Alaska. Before beginning the survey, baseline information was collected from several secondary sources, including the Regulatory Commission of Alaska, the 1997 State of Alaska Inventory of Communications Facilities Serving Alaskan Communities, Alaska Telephone Association 1999-2000 Directory, 1999-2000 Alaska Public Broadcasting Commission Joint Venture survey of cable television systems, Eight Star Communications survey of Internet Service Providers, and company Web sites. Surveys were sent to providers by electronic mail, postal service, or fax in late July and August of 2000. Each survey was accompanied by a letter of explanation from the Denali Commission co-chairs, Alaska Lt. Gov. Fran Ulmer and Federal Co-Chair Jeff Staser. Telephone companies also received a letter of appeal and subsequent communications from the Alaska Telephone Association. McDowell Group researchers made follow-up phone calls to providers to encourage response.

McDowell Group received data from all local telephone and long distance companies that are regulated by the Regulatory Commission of Alaska. However, for various reasons the telephone companies did not provide all the information requested about their services. This required extensive follow-up. Initial response was quite poor from the non-regulated services of cellular, Internet, and cable television, requiring detailed follow-up. Buy-outs, mergers, and acquisitions in Alaska telecommunications made the data collection process more difficult and caused project delays. Information was still being received and clarified in December as the final database was being completed.

In addition, McDowell Group surveyed rural communities to verify communication services, and to identify other service providers, such as tribal organizations, utility companies and other local groups that might be providing a telecommunications service, for example, Internet. Community information was gleaned from the Alaska Municipal League and the Alaska Community Database Online of the Alaska Department of Community and Economic Development. Borough and legislative offices, tribal entities, and the Business License Division of DCED were sources for contacts in some very obscure places.

A brief community questionnaire was sent via a "Fax Alert" and appeal from the Alaska Municipal League to 160 AML members. This prompted almost immediate response from city administrators. Where there was no city or tribal government, McDowell Group looked for other persons who could respond for that community. Responses were received from more than 200 communities. People were eager to talk about their telecommunications services, especially the lack thereof. Their

comments are recorded in the database under *Community General Information* on the database Switchboard.

Researchers tried to communicate directly with nearly every village targeted by the Denali Commission. Some of the 267 communities on the original list are not permanent communities.[1] Those communities remain in the database, designated as "No Information Available." Some communities did not respond to the survey, or we were not able to find a community contact. The database includes information about those communities from secondary sources or provider surveys.

Verification

To increase the integrity of the data collected, efforts were made to verify the information received from both communities and service providers. Level one verification included follow-up telephone calls or emails to clarify questionable information and request additional data. At the second level information received from companies was spot-checked against that received from communities.

Some information is missing from the final database. Larger telecommunications companies consider some of the data requested to be proprietary and refused to respond to the questions. This includes the number of telephone access lines, number of customers, and bandwidth available in each community. In some cases, the company included a statewide total for access lines and customers rather than a community total. Occasionally, it was necessary to use information from Web sites or state tariffs, which did not provide precisely the data needed. Where rates were presented as a range or "varies by location," it was necessary to call customer service representatives, which did not always result in a specific answer. A few companies did not answer pricing questions directly, forcing researchers to study tariff information, calculate and interpret rates.

McDowell Group was unable to collect information for 30 of the 267 communities targeted by the Denali Commission. Researchers gleaned as much information as possible from other sources. The records for those villages were left in the database for future updates. See the Appendix for a list of the missing communities.

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[1] Population had dwindled, the name was a geographic designation and not a community, the area was a suburb of Anchorage or Fairbanks, or residents were seasonal, such as fishing or hunting camps.

Introduction

> *We are satisfied with what we have, because we don't know of any other.*

This comment comes from the survey of community representatives conducted by the McDowell Group for the Alaska Telecommunications inventory. The question, **Are you satisfied with the telecommunications services available in your community? If not, why?** evoked a variety of responses, most indicating that rural communities are eager to be more involved in the Information Age than their rural geography currently allows. For example:

> *No -- Internet is not affordable. Communications systems are unreliable and we go without local phone service 2-3 days, 3 or 4 times a year ... Our new library has 2 computers for public use - but can't afford Internet.*

> *No -- We were told we don't get improvements because there aren't enough people here to warrant cost. Long distance goes out quite often. Internet not within our means.*

> *Satisfied. No complaints so far from our side.*

At statehood in 1959, Alaska had a confusing combination of U.S. military, community and independently owned telephone systems serving larger communities and the military bases, supplemented by high-frequency radio links in a few rural villages. In 2000, digital touch-tone phone service is available in nearly every community with a population of 25 or more.[2] Most Alaskans have a choice of long distance carriers. Cellular telephone and Internet service is commonplace in Alaska's largest cities as well as many rural communities. Fiber optic cable stretches within the state from Valdez to Prudhoe Bay, and more than 2,000 miles of undersea cables connect Alaska to the Lower 48. Television – once a one-channel satellite experiment in rural Alaska – is potentially available in every community from small home-satellite dishes delivering 40 to 150 or more channels. Alaskans are indeed part of the global village and demanding faster and better connections to the world. But barriers to better telecommunications exist, mostly in rural areas. The following summary of services highlights the information in the Telecommunications Services Inventory of Rural Alaska.

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[2] , Steve Hamlen, President, United Utilities, Inc.; also, President, Alaska Telephone Association. Interview, Dec, 21, 2000.

Summary of Findings

The database contains records for 267 Alaska communities and their telecommunications services as of Fall 2000. Each community record contains 1999 population estimates and land mass, as reflected in the Alaska Community Database Online, maintained by the Alaska Department of Community and Economic Development. An estimate of the percentage of village homes with telephones is extracted from the McDowell Group community surveys, and is strictly a guess by the community spokesperson that filled out the survey. It is not intended to be an exact measurement. Telephone access lines a more precise measure, are recorded in the database for each community for which that information was received. Community records also include address, telephone and email information for tribal or city offices.

The database summarizes the following telecommunications services for each community:

Local Telephone

During the survey period, the RCA approved the transfer of all GTE properties in Alaska to other Local Exchange Carriers (LEC). Alaska Communications Systems also received approval for name changes for all of its newly acquired companies. Seventeen parent companies provide local telephone service in Alaska, many of which do business under a familiar local name. The following companies serve the communities in the Telecommunication Inventory database, as well as Anchorage, Fairbanks and Juneau:

- Alaska Communications Systems, Inc. (ACS). (Formerly ATU Telecommunications, Telephone Utilities of the Northland, Telephone Utilities of Alaska, and PTI Communications of Alaska)

- Alaska Power and Telephone Company. (Owns Alaska Telephone Company, Bettles Telephone Company, and North Country Telephone Company. Acquired Haines, Hyder, Klukwan, Metlakatla, Petersburg and Wrangell exchanges previously owned by GTE Alaska Inc.)

- Arctic Slope Telephone Association Cooperative. (Acquired the Barrow exchange previously owned by GTE Alaska Inc.)

- Bristol Bay Telephone Cooperative, Inc.

- Bush-Tell, Inc.

- Circle Telephone Company

- Copper Valley Telephone Cooperative, Inc.

- Cordova Telephone Cooperative

- GCI Communications Corp. (Provides local telephone service in the Anchorage region. In 2001, GCI will provide local phone service in Fairbanks and Juneau)

- Ketchikan Public Utilities Telephone Division

- Matanuska Telephone Association

- Nushagak Telephone Cooperative, Inc.

- OTZ Telephone Cooperative, Inc.

- Summit Telephone Company, Inc.

- TelAlaska, Inc. (Interior Telephone Company, Inc. and Mukluk Telephone Company, Inc. Acquired the Moose Pass, Seward and Nome exchanges from GTE Alaska)

- United Companies, Inc. (United Utilities, Inc. and United KUC, Inc. Acquired Unalakleet, Bethel and McGrath exchanges from GTE.

- Yukon Telephone Company, Inc.

McDowell Group found that most homes in Alaska's rural villages now have telephones. Digital touch-tone telephone service is available in nearly every Alaska community with a population of 25 or more. A few communities have fixed cellular analog technology.

Low-income rural communities and tribal lands across America qualify for a reduction in basic telephone service charges under the federal Lifeline and Link-Up programs. Link-Up America offsets one-half of the initial hook-up fee for local telephone service, up to $100, for qualified low-income households. The Lifeline Assistance Program provides discounts on monthly charges to qualified telephone subscribers, including a waiver of the federal subscriber line charge. In most cases, the basic monthly rates on tribal lands are down to $1 per month for a qualifying Lifeline participant. All of Alaska is tribal, therefore reduced charges are available to low-income households that meet the requirements of the programs. The LECs and IXCs responding to McDowell Group surveys participate in these programs, and are identified in the database.

Basic monthly rates for local telephone service and the most popular local calling plan are reported in the database for both residential and business customers. Due to the number of calling plans and the diversity of features offered by telephone companies, researchers limited their inquiry to the plans purchased most often by consumers. Larger companies offer bundled services. Some rural LECs do not bundle popular features, such as call forwarding, call waiting, or voice mail. Rather, these companies price each feature individually. Prices for local telephone service are presented in the database by community and provider.

The surveys requested the number of access lines and number of customers for each telephone exchange, but some LECS consider this proprietary information and reported statewide totals. Other local telephone information in the database includes emergency service number (described below), extended area of service, and number of payphones as reported by telephone providers.

Long Distance

The Regulatory Commission of Alaska certificates Interexchange Carriers (IXC) to provide long distance services in Alaska. Alaska's largest statewide carriers are AT&T Alascom and GCI. In most cases LECs providing long distance services are reselling wholesale long distance minutes from the major carriers. The database lists only long distance companies with operations in Alaska that responded to our survey. Each company is identified as a facility-based or resale carrier. Although other U.S. telecommunications companies offer Alaskans greater choice in long distance than ever before and pre-paid telephone calling cards are a popular

alternative, most Alaskans still purchase long distance service from a local phone company, AT&T Alascom, or GCI.[3]

Business and residential customers have access to both calling plans and basic rates. Most consumers purchase a calling plan that charges a straight rate for long distance service. These plans sometimes require a flat monthly fee, with a fixed per minute charge that does not vary by time of day or mileage.

In contrast, basic long distance rates are based on the time of day the call is placed and mileage between the caller and the receiver. Callers purchasing basic long distance pay the highest prices on weekdays from 8 a.m. to 5 p.m., known as the peak. Off-peak basic rates are generally reduced by about 20 percent to 50 percent during evenings, nights and weekends. Basic rates often decrease for subsequent minutes.

Intrastate rates (calls within Alaska) and interstate (calls outside Alaska) reported in the database are for the first minute of service.

It is difficult to compare long distance calling plans as features differ across carriers. As more bundled services are offered, Alaskan households and businesses can choose from packages offering Internet, cellular service, special features and long distance plans that help bring down prices. Long distance prices are presented in the database by community and provider.

Cellular/Wireless phone

Wireless telephone service, commonly known as cellular, abounds in urban areas and is available in some rural communities. In Adak, for example, cell phones do not work. For licensing purposes, the Federal Communications Commission has divided Alaska into three rural service areas and one metropolitan service area:

- MSA 187: Municipality of Anchorage
- RSA 315, Alaska 1: Wade Hampton. Includes:
    - Wade Hampton
    - Nome
    - Kobuk
    - North Slope
    - Yukon-Koyukuk
    - Fairbanks N. Star
    - Southeast Fairbanks
- 316, Alaska 2: Bethel. Includes:
    - Bethel
    - Dillingham

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[3] Some of the cheapest long distance rates are provided by national membership organizations such as Costco. While Costco operates in Alaska, it does not offer its 6.5 cents per minute plan here.

- Bristol Bay Borough
- Kodiak Island
- Kenai Peninsula Borough
- Matanuska-Susitna
- Valdez-Cordova
- Aleutian Islands
- 317, Alaska 3: Haines. Includes:
  - Haines Borough
  - Juneau Borough
  - *Wrangell-Petersburg*
  - Ketchikan-Gateway
  - Sitka Borough
  - Skagway-Yakutat-Angoon
  - Prince of Wales-Outer Ketchikan

Cellular telephone is not regulated by the State of Alaska. McDowell Group found that most cellular services are offered by local or long distance companies. Some independent cellular companies, such as Cellular One (Dobson), also operate in Alaska. The database includes the provider, price and type of service (analog or digital) offered in 136 communities, including Anchorage, Fairbanks and Juneau. PCS, Personal Communications Service, is another form of digital cellular that is quite widely available outside Alaska. McDowell Group identified one PCS provider, Alaska Digitel, but the company did not respond to the telecommunications survey.

Most wireless network operators have roaming agreements with operators in other service areas so that subscribers can use their phones in those areas.

Cellular price data was the most difficult to collect, especially the "Best Buy." Most cellular providers indicate that the "Best Buy" depends on how the service is used.

Internet

Affordable bandwidth remains the greatest impediment to Internet service in rural areas. The high cost and limited availability of satellite space is probably the biggest hurdle for LECs in rural Alaska, where there is no economy of scale.[4] It poses such a challenge that Alaska Sen. Ted Stevens has called on the telecommunications industry to seek a solution and expand telecommunications and information service, including high-speed broadband Internet access, to rural communities.[5]

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[4] Hamlen.
[5] Sen. Ted Stevens, R-Alaska, Feb. 15, 2000. letter to James Rowe, Executive Director, Alaska Telephone Association.

Of the 267 communities in the telecommunications inventory, McDowell Group found that 119 did not have local dial-up Internet service, which is the least expensive and most common type of Internet access. Where local access is not available, users can dial a 700 or 800 access number, pay a surcharge or long-distance charge, and a charge per-minute. Even America Online's "free" trial is not free in rural Alaska, where communication surcharges of 10 cents per minute, or $6 per hour, apply.

The quality and speed of the Internet connection in each community depends on the computer terminal modem speed, the quality and speed of the modems used by the Internet Service Provider, and the quality of the telecommunications link connecting the user to the Internet. McDowell Group requests for the "bandwidth available to the general public" resulted in a variety of answers, making comparisons difficult. Currently, maximum bandwidth for dial-up access is 56 Kbps (not DSL). Some providers answered the questions with total bandwidth available. GCI, a very large statewide ISP, considered bandwidth to be proprietary market share information. The GCI Website states that GCI.net provides for dial-up connection speeds up to 56Kb, with the actual speed "affected by your computer, modem, and the quality of your telephone line." This conditional statement is used in the database.

Like many new services, Internet remains technology- and price-sensitive. McDowell Group did not survey rural households to estimate computer penetration nor Internet usage. The cost of Internet service considers both hardware and telecommunication service fees. It is believed that as the cost of personal computers or other Internet access devices decrease, Internet use will increase. Correspondingly, as Internet access costs decrease, the number of users will increase.

For example, United Utilities, Inc. provides local telephone service to 60 rural villages, where two-thirds of the households are low income and qualify for Lifeline and Link Up subsidies. UUI provides local dial-up Internet access to 11 communities, but few households are connected. In that company's experience, where Internet service is more than $20 per month, only about 5 percent of a community's telephone access lines are connected to the Internet. Where the price is $20 or less, Internet connections increase to about 10 percent.[6]

Alaska's largest LEC, Alaska Communications System, provides local dial up Internet access to some rural villages as well as Anchorage, Fairbanks and Juneau. Dial up charges range from $10 to $44.95, depending on location, service features, and whether Internet is packaged with other ACS services. In general, rural consumers pay the most, while consumers in Anchorage, Fairbanks, and Juneau, enjoy the lower prices. For example, Angoon residents using ACS report paying $44.95 a month.

A few entrepreneurs in rural Alaska are providing wireless or cable modem Internet service. McGrath Light and Power, for example, offers local dial-up access and wireless Internet. In the fall of 2000, wireless equipment packages cost the customer $675, down from $1,000. Installation was $100, set-up $35 and the monthly residential fee $32. McGrath reported a total of 55 residential and business customers for both types of access. About a third of the residential customers were using the wireless system.

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[6] Hamlen.

Wireless technology connects two school buildings, the health clinic and school staff dwellings in the Eskimo village of Toksook Bay, a test site for a wireless project. Community residents, however, report that they would like Internet service to their homes.

The TDX Corporation, the Native corporation for St. Paul Island, has connected its cable TV customers on St. Paul Island to the Internet. The service provides download and uplink speeds up to 256Kbps. The news release announcing the service stated that the key link was made possible with the launch of Telstar 7 satellite. TDX charges cable customers $50 per month for the service.

A few Southeast Alaska communities receive Internet service through SEAKnet, a collaboration between the Alaska State Library, the communities and the University of Alaska. The regional computer network was originally funded by a federal grant.

The database presents Internet service by community and provider, including bandwidth, the number of customers served, type of access, the cost of business and residential monthly dial up access, as well as per minute charges. Some toll-free access ISPs charge customers for the time they are connected to the Internet.

Each of Alaska's 227 Native tribes will be connected to the Internet through the U.S. Department of Interior. The Alaska Tribal Technology Access Project has received $1.2 million in federal funds for purchasing a computer and toll-free Internet access for three years. The telecommunications inventory database identifies 184 communities that are connected to the Internet through ATTAP. As more come online, the database can be updated.

The inventory also includes a list of schools that are connected to the Internet, as reported by the ISP. About 190 schools throughout Alaska are connected to the Internet through the GCI SchoolAccess program. McDowell Group found few community libraries served by commercial ISPs. Many are connected through the Alaska State Library; that information is not reported here.

The "E-Rate" gives U.S. elementary and secondary schools a discount on telecommunications carrier services, including Internet access. E-Rate grants come from the Universal Service Fund, which gets money from a federal surcharge on telephone lines. The Universal Service Fund is used to offset operating costs of telecommunications providers in high-cost areas, such as Alaska. Alaska schools are in the third year of the E-Rate program. The reduction for telecommunications services is based on the number of students eligible for the National Free Lunch Program. Libraries and rural health care clinics also qualify for USF funding.

Telecommunications research for Alaska schools and health care facilities is being conducted by other groups and McDowell Group did not duplicate those efforts. The Distance Education Technology Consortium, headed by University of Alaska President Mark Hamilton, has been studying technology infrastructure in educational institutions across the state. Also, for detailed information on school connectivity in Alaska see Legislative Research Report Number 00.007, *Internet Access in Rural Alaska.*

Emergency Services

Many communities in rural Alaska do not have 911 emergency calling service because there is no funding for personnel to receive the 911 calls. However, LECs have the capability to provide 911 dialing even in communities that do not have the service. McDowell Group found that basic 911 is provided in 85 and enhanced service in 16 rural communities. Enhanced 911 shows the caller's location to enable public safety personnel to find callers who cannot provide their precise address. Four communities in rural Alaska dial a seven-digit number to reach public safety.

While respondents were asked to provide the operator of the service, such as local police, Village Public Safety Officer, or State Troopers, many telephone companies did not provide that information, and most community respondents do not know where the number rings. It is considered proprietary information and does not have to be provided to third parties. The McDowell Group surveys found 911 ringing in a variety of places, from the local power plant to the nearest State Trooper's office hundreds of miles away.

In December 2000 the State of Alaska began testing the Alaska Mini-Radio Service, a new Emergency Alert System, in Shishmaref. The database provides a field for Emergency Alert System (EAS), so that it can be updated as the service is implemented in other communities.

Television and Radio Services

At one time the only television available in rural Alaska was the former Rural Alaska Television Network, now known as Alaska Rural Communications Service, or ARCS. The state in 1977 introduced satellite television in a few communities and by the mid-1980s operated a channel carrying a combination of commercial public television programs to 224 rural communities. By 1991, approximately 90 of those communities had their own cable television system.[7] The McDowell Group surveys show that 113 communities had cable television and 75 of those local systems carry the ARCS channel. According to a recent survey by the Alaska Public Broadcasting Joint Venture, ARCS satellite receivers are working in 164 of the communities in the database. The research indicates that ARCS is a very important source of television programming in rural Alaska, and in many communities it is still the major source of news, weather and other information about Alaska. Alaska One, the statewide public broadcasting service, is on a few cable television systems and available over the air in Juneau, Fairbanks, Bethel, Kodiak, and Unalaska, as well as by translator to a few other communities. KAKM public TV serves the greater Anchorage area. Alaska has one commercial satellite television station (known as the SuperStation). Only a handful of rural communities do not receive a primary or translated AM of FM signal from an Alaska radio station. Four public radio stations are on satellite.

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[7] By 1991, cable had been installed in communities with populations as small as 300, but it was economically impractical for operators to provide cable to villages with 50 or fewer households. Larry Pearson, *The Future of State-Supported Broadcasting in Alaska: Final Recommendations to the House Special Committee on Telecommunications,* (Alaska Legislature, March 1987, revised August 1987), Appendix.)

More and more homes now have Direct Broadcast Satellite dishes and McDowell Group found instances where small cable systems had gone out of business due to the competition with home satellite dishes. According to estimates, more than 16,000 Alaskans subscribe to DBS and about 6,000 use C-Band.[8] DBS is potentially available statewide, although McDowell Group was unable to get a complete list of communities with home satellite receivers. The cost of DBS is decreasing as home satellite dishes get smaller. Community surveys returned to McDowell Group show Dish Network and DirecTV as the services used most often. Equipment and installation costs range from $900 to $1,200. Monthly costs range from $20 to $70 and more, depending on the number of channels.

For most customers, the number of channels available to rural households is not as important as the content of those channels.[9] Despite the proliferation of cable television, Direct Broadcast Satellite, or the Internet, rural Alaskan homes receive few media voices from Alaska. No matter how many media sources a community has, if residents do not have information that is vital to their existence, they do not have enough information. In the database McDowell Group has identified communities that receive radio and television channels that provide some news and information about Alaska, including ARCS. By comparison to the tremendous availability of local and statewide information in urban Alaska, rural Alaska must be considered "media poor."[10]

Other Services

McDowell Group also collected information on audio and video teleconferencing, other voice and data services, and fiber optic cable routes. All of this information is included in the database under *Reports*.

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[8] Tom Brady, Microcom. Survey submitted to McDowell Group, Inc.

[9] Rosemarie Alexander Isett, *Publicly Funded Satellite Television in Alaska: Lost in Space*, (Ph.D. Dissertation, Michigan State University, East Lansing, Michigan, 1995.)

[10] Larry Pearson, "Desert Storm and the Tundra Telegraph: Information Diffusion in a Media-Poor Environment," in Desert Storm and the Mass Media, Bradley Greenberg and Walter Gantz, eds. (Cresskill, NJ: Hampton Press, 1993.)

The Telecommunications Services Inventory of Rural Alaska is a summary of the services available throughout the state in Fall 2000. It is intended to be updated as the telecommunications landscape of rural communities changes.

Although a snapshot in time, the McDowell Group believes the existing information also warrants further development. Specifically:

Database analysis to identify significant issues, including:

- Internet penetration in communities with service gaps
- Disparity of services and features among communities
- Rate differentials among communities

The database may be further refined, for example, with additional:

- Descriptive fields by service type
- Consumer rate data
- Queries and reports to compare various services among communities

This Microsoft Access database is designed to be easily maintained. To keep the information current, quarterly updates should address the following:

- Changing telecommunications services
- Changes in telecommunications company ownership
- Procedures for collecting information from providers and the communities

Introduction

The Denali Commission requested a comparison between the cost of services in rural and urban Alaska and three major cities in the Lower 48. This price comparison includes the cities of Seattle, Washington, Los Angeles, California, and Chicago, Illinois; Alaska's largest cities of Anchorage, Fairbanks and Juneau; and the rural communities in the database. Database users can perform a query and compare the communities of their choice. (See below.)

Community Selection

As an example for the purposes of this published report, McDowell Group selected four rural communities based on location and survey results, to compare consumer prices of telecommunication services. The following communities are included in the prototype rate comparison.

Bethel

A city of 5,500 residents, Bethel is selected for the prototype rate comparison because it is the economic and transportation hub of the Yukon Kuskokwim Delta.

St. Mary's

To the north of Bethel, the Yu'pik community of St. Mary's has a great hunger for Internet service. St. Mary's was used as a demonstration sight for an AT&T Alascom Internet service a few years ago, and residents enjoyed free access for almost two years. The access was terminated, leaving many homes with computers but no Internet service. According to the city manager, the city has called and written to "providers about providing service to St. Mary's ... I am told that our problem is size." St. Mary's provides an excellent example of "bandwidth envy," where children have access to the Internet at school, and homes have no access.

Eagle

On the other side of the state, residents in the tiny village of Eagle also want better telephone service and high speed Internet. Only 12 miles from the Canadian border, 170 people live in Eagle. When the library is open, its two public-use computers are constantly busy. The town has been working to secure a local ISP so residents no longer have to pay long distance charges.

Hyder

The residents of Hyder, Alaska have a mix of international telecommunications services. Straddling the border of Canada in southern Southeast Alaska, the town's long distance is provided by a Canadian company, Internet access is provided by the Stewart, B.C. library, and an Alaska LEC provides local telephone service. Hyder residents say they would welcome competition because their telecommunications services are so expensive. "No one wants to compete for 140 people," said a Hyder resident.

Rate Comparison Methodology

Data for particular telecommunications services were collected for the ten locations between late August and mid-October of 2000. McDowell Group was unable to obtain sample monthly rates from the regulatory commissions of California, Illinois and Washington, due to the way the states collect and maintain rate information. (The Regulatory Commission of Alaska provides sample monthly telephone rates in annual statistical reports.) Consumer prices for Chicago, Los Angeles and Seattle were collected for the cost comparison from Internet Web sites, interviews, and "mystery shopping." Service description and rates were then gleaned from Internet Web sites, and verified through interviews with company representatives. If these methods failed, a researcher posing as a consumer called the company and asked for service and price information.

Data for the urban and rural communities were taken from the provider surveys conducted by the McDowell Group for the Denali Commission telecommunications inventory.

The accompanying tables show the prices for selected services in each community. Urban Alaska residents can choose among various telephone calling plans, cellular phone service, cable television and types of Internet access. The four rural communities have one local telephone company. Cable television is not available in Eagle. Bethel residents have three options for dial-up Internet service. Hyder residents can only get online through their Canadian neighbors, and then access is limited. Eagle and Saint Mary's have no Internet options.

Local Telephone Service: Sample Features & Rates
(without taxes and surcharges. Prices collected in Fall 2000.)

Urban Outside Alaska
Residential Service

	Connection Fee	Basic Service	Most Popular Plan
Seattle (Qwest)	$31	$12.50/mo	$29.95/mo
Los Angeles (PacBell)	$33	$10.69/mo	$14.95/mo
Chicago (Ameritech)	$55	$16.50/mo	$29.00/mo

Source: www.abelltolls.com and McDowell Group, Inc. research.

Urban Alaska
Residential Service

	Connection Fee*	Basic Service	Most Popular Plan
Anchorage (ACS)	No Charge	$9.70/mo.	$15.95/mo.
Anchorage (GCI)	No Charge	$9.40/mo.	$15.49/mo.
Fairbanks (ACS)	No Charge	$12.50/mo.	$16.45/mo.
Juneau (ACS)	No Charge	$9.42/mo.	$16.53/mo.

*If site visit is not needed

Source: McDowell Group, Inc., Telecommunications Inventory Survey of Service Providers

Rural Alaska
Residential Service

	Connection Fee	Wiring Fee	Basic Service	Most Popular Plan*
Bethel (United KUC)	$37.50	$89.75	$13.80/mo	Not Available
Eagle(AP&T)	$50.00	$40.00	$12.00/mo	Not Available
Hyder(AP&T)	$14.00	$40.25	$11.75/mo	Not Available
Saint Mary's(UUI)	$37.50	$89.75	$19.23/mo	Not Available

*Companies provide only basic service. Features such as call forwarding and call waiting are available at additional cost.

Source: McDowell Group, Inc., Telecommunications Inventory Survey of Service Providers

Long Distance Phone Service: Sample Features & Rates[11]
(without taxes and surcharges. Prices collected in Fall 2000.)

Urban Outside Alaska
Residential Service

	Minimum Monthly Charge	Intrastate Peak Rate	Intrastate Off-Peak Rate	Interstate Rate
Seattle (Comtel)	$11.08	.07	.07	.07
Seattle (AT&T One Rate)	$5.43	.10	.10	.16
Los Angeles (Univance 5.0 Residential)	$1.06	.04	.04	.05
Los Angeles (AT&T One Rate)	$5.43	.07	.07	.16
Chicago (Cable & Wireless Residential)	$56.75	.04	.04	.07
Chicago (AT&T One Rate)	$9.72	.07	.07	.05

Source: www.abelltolls.com and McDowell Group, Inc. research.

All Alaska
Residential Service Calling Plan

	Minimum Monthly Charge	Intrastate Peak Rate	Intrastate Off-Peak Rate	Interstate Rate
GCI	$5.99	.14	.14	.10
AT&T Alascom	$4.95	.14	.14	.07

Source: McDowell Group, Inc., Telecommunications Inventory Survey of Service Providers

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[11] Rates are based on a one-minute call using each plan. Calls are assumed to have a one-minute minimum and billing increments of one minute. Numbers are rounded to the nearest tenth.

Cable Television Service: Sample Features & Rates
(Prices collected in Fall 2000.)

Urban Outside Alaska

	Installation	Converter	Basic Service	Expanded	Digital
Seattle (AT&T Cable)	$22-$50	$3.90/mo	$13/mo 13 channels	$30/mo 70 channels	$69.99/mo free install, 150 channels
Los Angeles (Buenavision)	$9.95	Free	$34.95/mo 60 channels	N/A	N/A
Los Angeles (Adelphia/At Home)	$22-$44	$4.06/mo	$11.57/mo 27 channels	$29.25/mo 70 channels	$43.83/mo 100+ channels
Chicago (Prime Cable)	$22.67	$2.39/mo	$23.50/mo 32 channels	$38.04/mo	N/A
Chicago (21st Century)	Free	Free	$29.95/mo 91 channels	$50.95/mo 91+6 movie channels	N/A

Source: McDowell Group, Inc. research

Urban Alaska

	Installation*	Converter	Basic Service	Expanded	Digital
Anchorage (GCI)	$18.76	$3.00/mo	$17.50/mo	$43.90/mo	$36.73/mo
Fairbanks (GCI)	$18.76	$2.82/mo	$14.48/mo	$48.36/mo	$34.47/mo
Juneau (GCI)	$18.76	$3.95/mo	$14.16/mo	$57.46/mo	N/A

*For unwired homes

Source: McDowell Group, Inc., Telecommunications Inventory Survey of Service Providers

Rural Alaska

	Installation	Converter	Basic Service	Expanded	Digital
Bethel (GCI)	$18.76 Unwired	$3.00/mo	$56.00/mo*	$80.00/mo w/converter	Not Available
Eagle	No Cable Service	No Cable Service	No Cable Service	No Cable Service	No Cable Service
Hyder	No Cable Service	No Cable Service	No Cable Service	No Cable Service	No Cable Service
Saint Mary's (Frontier)	No info. available	No info. available	$55.00**	Not Available	Not Available

*24 channels included in basic service

**11 channels included in basic service

Source: McDowell Group, Inc., Telecommunications Inventory Survey of Service Providers

Internet Dial-Up Service: Sample Features & Rates
(Prices collected in Fall 2000.)

Urban Outside Alaska

	Residential Monthly Dial-Up	Business Monthly Dial-Up
Seattle (Qwest)	$12.95/mo w/ feature plan	$19.95/mo
Los Angeles (PacBell)	$17.95/mo	$22.95/mo
Chicago (Ameritech)	$10.95/mo, 10hr access, $1.95 each add hr.	$15.95/mo

Source: McDowell Group, Inc. research

Urban Alaska

	Residential Monthly Dial-Up	Business Monthly Dial-Up
Anchorage (GCI)	$24.95/mo	$19.95/mo
Anchorage (Chugach.net)	$12.50-$19.95/mo	$12.50-$19.95/mo
Fairbanks (GCI)	$24.95/mo	$19.95/mo
Fairbanks (Chugach.net)	$12.50-$19.95/mo	$12.50-$19.95/mo
Juneau (GCI)	$24.95/mo	$19.95/mo
Juneau (Chugach.net)	$12.50-$19.95/mo	$12.50-$19.95/mo

Source: McDowell Group, Inc., Telecommunications Inventory Survey of Service Providers

Rural Alaska

	Residential Monthly Dial-Up	Business Monthly Dial-Up
Bethel (GCI)	$24.95/mo	$24.95/mo
Bethel (Unicom)	$12.95 – 19.95/mo	$12.95 – 19.95/mo
Eagle	No Internet Service	No Internet Service
Hyder (onewayout.net)	$35.00/mo	Not Available
Saint Mary's	No Internet Service	No Internet Service

Source: McDowell Group, Inc., Telecommunications Inventory Survey of Service Providers

Internet Cable Modem Service: Sample Features & Rates
(Prices collected in Fall 2000.)

Urban Outside Alaska

	Installation	Hardware	Monthly Fee
Seattle (AT&T Cable)	Free	Free	$39.95
Los Angeles (Buenavision)	$99	$10.00/mo	$29.95
Los Angeles (Adelphia/At Home)	$99 (desktop) ;$150 (laptop)	$9.95/mo	$34.95 w/cable, $54.95 w/o cable
Chicago (Prime Cable)	$62.50 - $125	Free	$39.95 w/cable, $59.95 w/o cable
Chicago (21st Century)	Free	Free	$39.95

Source: Telephone calls and McDowell Group, Inc. research.

Urban Alaska

	Installation	Hardware	Monthly Fee
Anchorage (GCI)	No Charge	Not Included	$39.99/mo $54.99/mo (LD inc.)
Fairbanks (GCI)	No Charge	Not Included	$39.99/mo $54.99/mo (LD inc.)
Juneau (GCI)	No Charge	Not Included	$39.99/mo $54.99/mo (LD inc.)

Source: McDowell Group, Inc., Telecommunications Inventory survey of service providers

Rural Alaska

	Installation	Hardware	Monthly Fee
Bethel		No Cable Modem Available	
Eagle		No Cable Modem Available	
Hyder		No Cable Modem Available	
Saint Mary's		No Cable Modem Available	

Source: McDowell Group, Inc., Telecommunications Inventory survey of service providers

Internet DSL Service: Sample Features & Rates
(Prices collected in Fall 2000.)

Urban Outside Alaska

	Installation	Basic DSL	Special Plan
Seattle[1] (Qwest)	Free	$29.99/mo unlimited access	$19.95/mo 2hr sessions
Los Angeles (PacBell)	$150	$39.95/mo unlimited access	N/A
Chicago (Ameritech)	Free	$39.95/mo unlimited access	$69.95/mo router for 4-6 phones

Source: McDowell Group, Inc. research.

Urban Alaska[12]

	Installation	Basic DSL	Special Plan
Anchorage (GCI)*	$360**	$89.00/mo	$99.00/mo
Anchorage (ACS)	None	$54.95/mo	$89.95/mo
Fairbanks (ACS)	None	$54.95/mo	$89.95/mo
Juneau (ACS)	None	$54.95/mo	$89.95/mo

*Business customers only.

**Set-up fee is waived with 3-year commitment.

Source: McDowell Group, Inc., Telecommunications Inventory survey of service providers

Rural Alaska

	Installation	Basic DSL	Special Plan
Bethel		No DSL Internet Service	
Eagle		No DSL Internet Service	
Hyder		No DSL Internet Service	
Saint Mary's		No DSL Internet Service	

Source: McDowell Group, Inc., Telecommunications Inventory survey of service providers

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[12] Upload and download speeds vary with ISP and plan selected.

Microsoft Access 2000 software has been used to build the Telecommunications Inventory of Rural Alaska. Access is a user-friendly, efficient tool for managing large amounts of data, and is compatible with the Denali Commission's PC-based local area network. The Access database consists of tables, queries, reports and forms. Tables house the data, queries are used to examine and manipulate the data, and reports present the data for review. Forms are the user interface that will help the user maneuver through the tremendous amount of data presented for each community and company.

Browsing the Database

Here are tips for using the final database:

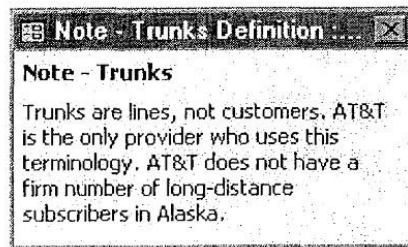1. The database opens to a Main Switchboard, represented here:

Switchboard : Form

Telecommunications Inventory of Rural Alaska

Double-click on any underlined text to access forms, reports, queries, and explanations.

Community and Provider Information

Community Contact Information
Community General Information
Provider Contact Information

Abbreviations and Other Information

Services Information

Broadcast Radio
Broadcast TV
Cable TV Systems
Cellular/Wireless Service
Emergency Services
Internet Services
Local Telephone
Long Distance Service
Public Pay Telephones
Teleconference

Reports

Cable TV Rates
Community Summary Instructions
Fiber Optic Cable
Internet Access by Community
Internet Bandwidth
Internet Rates
Local Telephone Access Lines
Local Telephone Providers
Other Voice and Data

Queries

Rate Comparison Query Instructions

2. Contact and general information is included for each town, as well as data about the telecommunications services available in that community. In some communities the user will find more than one provider offering a service. Specific telecommunications and media services include:

- Broadcast Radio and TV
- Cable TV Systems
- Cellular/Wireless Services
- Emergency Services
- Internet Services
- Local Telephone
- Long Distance Service
- Public Pay Telephones
- Teleconference

3. The Services Information forms access information about the services provided to each community. Multiple forms are sorted alphabetically by community and you can click through to the community of your choice, or use a filter to look up a community.

4. In all of the forms, clicking on any text that is underlined will open a form or report. For example, clicking on <u>Number of Trunks</u> on the Long Distance Service forms will open an explanation form.

Note - Trunks Definition

Note - Trunks

Trunks are lines, not customers. AT&T is the only provider who uses this terminology. AT&T does not have a firm number of long-distance subscribers in Alaska.

5. The following reports are included in the database and listed on the Switchboard:

- Community Summary of Services and Rates
- Cable TV Rates
- Fiber Optic Cable (Routes)
- Internet Access by Community
- Internet Bandwidth

- Internet Rates

- Local Telephone Access Lines

- Local Telephone Providers

- Other Voice and Data

These instructions are included for generating the reports showing the Community Summary of Service and Rates:

6. To exit the database, close all forms by clicking the X in the upper right corner.

ANALOG -- Comes from the word "analogous," which means transmitted – voice, video, or image -- is "analogous" to the original signal.

ANALOG CELLULAR – The current standard for cellular communications.

BANDWIDTH – The number of bits of information that can move through a communications medium in a given amount of time.

CABLE MODEM – A cable modem is a small box that connects your PC to the Internet via your local cable TV provider. Cable modems allow PC users to download information from on-line services at very high speeds .

DBS – Direct Broadcast Satellite – Satellite subscription television service using small dishes installed at homes. Current DBS dishes can be as small as 18 inches. C-Band satellite dishes are much larger, 6 to 10 feet in diameter.

DIAL UP – A connection to the Internet, or any network, where a modem and a standard telephone are used to make a connection between computers.

DIGITAL CELLULAR -- Cellular communications technology developed to eliminate problems encountered with analog cellular: static, loss/interruption of signal when passing between cells, and failure to get a connection because of congested relays. Analog offers has a longer range in Alaska's challenging terrain.

DIGITAL SUBSCRIBER LINE -- DSL – High-speed Internet service over regular telephone lines.

E-RATE – A federal program that grants elementary and secondary schools a discount on telecommunications services, including Internet access.

FRAME RELAY – Intended for data communications. Frame relay is especially good for efficiently handling high-speed data over wide area networks.

INTERNET -- A global collection of interconnected computer networks which has become the new publishing, research and commerce medium.

ISDN – Integrated Services Digital Network – A set of standards for transmission of simultaneous voice, data and video information over fewer channels than would otherwise be needed. The most common ISDN system provides one data and two voice circuits over a traditional copper wire pair, but can represent as many as 30 channels. Broadband ISDN extends the ISDN capabilities to services in the Gigabit range.

ISP – Internet Service Provider – a company providing retail and/or wholesale Internet services.

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[13] Source: General Communications, Inc. 1999 Annual Report and Newton's Telecom Dictionary 16th Expanded & Updated Edition

IXC – Interchange Carrier – A long distance carrier providing services between local exchanges.

LAN – Local Area Network – The interconnection of computers for the purpose of sharing files, programs and various devices such as printers and high-speed modems.

LEC – Local Exchange Carrier – A company providing local telephone services.

PCS – Personal Communication Services – PCS encompasses a range of advanced wireless mobile technologies and services.

RCA – Regulatory Commission of Alaska – A state regulatory body empowered to establish and enforce rules and regulations governing public utility companies and others.

SCHOOL ACCESS – GCI's Internet and related services offering to schools in Alaska. The federal mandate through the 1996 Telecom Act to provide universal service resulted in schools across Alaska qualifying for varying levels of discounts to support the provision of Internet service. The universal Service Administrative Company through its Schools and Libraries Division administers this federal program.

TARIFF – The schedule of rates and regulations set by communications common carriers and filed with the appropriate federal and state regulatory agencies.

Communities with Limited Information

Community	Local Telephone Provider	Long Distance Telephone Provider	Internet Provider	Cable Systems Provider	Cellular Provider
Alatna	No information available.	No information available.	No information available.	No information available.	No information available.
Alexander Creek	No information available.	No information available.	No information available.	No information available.	No information available.
Brevig Mission	No information available.	GCI	GCI	City of, Brevig Mission	No information available.
Chickaloon	No information available.	No information available.	MTA Online	No information available.	No information available.
Chicken	No information available.	No information available.	No information available.	No information available.	No information available.
Chiniak	No information available.	No information available.	ACS Internet	No information available.	No information available.
Chistochina	No information available.	No information available.	No information available.	No information available.	No information available.
Circle Hot Springs	No information available.	No information available.	No information available.	No information available.	No information available.
Copper Center	No information available.	No information available.	No information available.	No information available.	Copper Valley Telephone Cooperative, Inc.
Copperville	No information available.	No information available.	No information available.	No information available.	No information available.
Eagle	No information available.	AT & T Alascom	GCI	No information available.	No information available.
Eagle	No information available.	AT & T Alascom	ACS Internet	No information available.	No information available.
Gakona	No information available.	No information available.	No information available.	No information available.	Copper Valley Telephone Cooperative, Inc.
Gambell	No information available.	United Utilities, Inc.	GCI	Frontier Cable, Inc.	United Utilities, Inc.
Gambell	No information available.	AT & T Alascom	GCI	Frontier Cable, Inc.	United Utilities, Inc.
Gulkana	No information available.	No information available.	No information available.	No information available.	No information available.
Houston	No information available.	No information available.	GCI	No information available.	MTA Wireless
Houston	No information available.	No information available.	MTA Online	No information available.	MTA Wireless
Houston	No information available.	Matanuska Telephone Association	GCI	No information available.	MTA Wireless
Houston	No information available.	Matanuska Telephone Association	MTA Online	No information available.	MTA Wireless
Jakolof Bay	No information available.	No information available.	No information available.	No information available.	No information available.
Kachemak	No information available.	No information available.	No information available.	GCI	No information available.
Kenny Lake	No information available.	No information available.	No information available.	No information available.	Copper Valley Telephone Cooperative, Inc.
Mendeltna	No information available.	No information available.	No information available.	No information available.	No information available.

Communities with Limited Information, con't.

Moose Creek	No information available.	No information available.	No information available.
Nanwalek	No information available.	No information available.	No information available.
Napaimute	No information available.	No information available.	No information available.
Nikiski	No information available.	Peninsula Internet	MTA Wireless
Nikiski	No information available.	GCI	MTA Wireless
Nikiski	No information available.	Custom CPU	MTA Wireless
Nikolaevsk	No information available.	No information available.	No information available.
Northway Village	No information available.	No information available.	No information available.
Paxson	No information available.	No information available.	No information available.
Port Clarence	No information available.	No information available.	No information available.
Portage Creek	No information available.	GCI	No information available.
Salcha	No information available.	No information available.	No information available.
Saxman	No information available.	No information available.	CellularOne
Saxman	No information available.	Ketchikan Public Utilities	CellularOne
Skwentna	No information available.	No information available.	MTA Wireless
Slana	No information available.	No information available.	No information available.
Tanacross	No information available.	GCI	No information available.
Tazlina	No information available.	No information available.	No information available.
Tonsina	No information available.	No information available.	Summit Cellular
Polk Inlet	No information available.	No information available.	No information available.